

COST *and* MANAGEMENT

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at 25 cents each.

EDITORIAL.

Wage Payment Trends

Recently we have heard a lot concerning the Annual Wage Payment Plan, and have been somewhat surprised at the number of cases in which such a plan has been put into effect.

A year or so ago the Annual Wage Payment Plan was looked upon as something to be dreamed of, but now quite a number of organizations actually have such a plan in operation, and only this week we have heard of two other Canadian companies who are installing such a system, and of others who contemplate such a change.

Peculiarly enough, the latest cases are with companies whose production is seasonal in character, and while it may be argued that these are the only types of industry that such plans would benefit to any extent in the matter of payment to workmen, it is undoubtedly a sign of the times when so much practical interest is being shown in such plans.

Only three or four weeks ago this writer was present during a discussion on this very subject, when it was argued that it was impossible to arrange such a plan in a seasonal industry, and it was also stated that had there been any merit in this type of wage payment plan, it would have been adopted long ago.

As a matter of fact, the very highly seasonal industries, such as certain canning plants, appear to be out of the question for such a plan to operate because they are open only a comparatively short period of time, and those engaged there go to other industries when possible during the rest of the year.

Such a plan, however, has been tried very successfully in a seasonal industry such as the sporting goods industry, and as for the merits of the system and its benefits to workers there can be no doubt.

The general idea is to fix a certain weekly or semi-monthly wage payment for workers with a credit being set up to take care of the balance, this credit being used when the wage falls short of the fixed payment.

Any surplus at the end of the year is usually handed to the worker in a lump sum, or it can remain to his credit, as he desires.

In most instances, a certain number of weeks' work are guaranteed to the worker, who then knows what his income will be over that period.

If such a plan can be worked successfully during times of stress through which we are now passing—and it has been proved—then there is no reason why it cannot be adopted on a much larger scale.

Undoubtedly the number of plants adopting this type of wage payment plan will increase rapidly in the near future, and this writer knows of nothing that will induce better relations between management and labour than such a scheme. It is indeed a sign of the times.

Across the Secretary's Desk

Since my last letter I have been rather agreeably surprised by the number of firms who have applied at headquarters when in need of either a Cost Accountant or an Accountant. Not in all cases have such firms employed the man whose name was submitted by this office, or who were recommended, but the fact that application was made to us gives cause for satisfaction, and we wish more would do so. It is true that a very small percentage of our members are out of employment, but there are some who would like a change for the better, and there is no reason why more applications of this nature should not be made to headquarters.

Perhaps YOU have never thought of this, and so we leave the thought with you.

Several members have written recently concerning Cost and Management, and the advancement of the Society generally, and these members have my sincere thanks . . . Not always does one please, but it is pleasing to know that some interest is being shown, whether or not the criticism happens to be for or against. WHAT DO YOU THINK?

When in St. Catharines recently, at a meeting of the Niagara Peninsula Chapter, I ran across Alf. Keene. Many Hamilton, and Toronto members especially will remember Alf. as a charter member of the Hamilton Chapter and as one who did some very valuable work for the Society generally. In recent years, his health has not been good, but it was very pleasant to see him looking so well. He was attending, of all things, a cricket meeting.

At this same meeting I was approached by a member of the Chapter who suggested that next season, instead of holding but one meeting per month, two be held, one with a guest speaker, as at present, and the other as a round-table discussion on every-day problems brought up by the members.

I suggested such a plan recently in Cost and Management, and it seems to have been very well received by the members generally. It was advanced mainly with the idea of assisting student members, but, after all, aren't we all students? At least we should be, and I know of no better plan for obtaining knowledge than the one suggested. Hamilton, Kitchener and London recently tried out the discussion type of meeting and the experiment proved to be a huge success in all cases. This type of meeting will undoubtedly be tried again. Certainly it gives everyone present an opportunity to air his views on the subject under discussion. The trouble is that sometimes some of the members want to air views on something outside the discussion altogether.

In any event, now is the time to determine what types of meetings you prefer, and what topics you desire to hear discussed next season, in order that your directors may give you what you most desire next season.

R. D.

Chapter Notes

Montreal.

The annual Student Night of the Montreal Chapter was held on February 24th, and from all accounts it was a huge success, as is usually the case in Montreal. No details are to hand at the time of going to press, but it is a fact that Montreal knows exactly how to put on a Student Night.

The first meeting in the month of March was held in the Arts Building, McGill University, on March 10th, and the guest speaker on this occasion was Mr. Owen Loble, Vice-President of the firm of Molson, Loble & Co., Ltd., Montreal, and his subject was "Public Debt and Private Wealth." As this journal went to press immediately after this meeting, it was, of course, impossible to obtain details of the meeting, but we rather think that here was another grand meeting.

On March 24th, the Montreal Chapter will hold a Mock Trial, and if previous meetings of this nature held by the Montreal Chapter are any guide, then this should be one worth the attendance of every member.

Toronto.

The February meeting of the Toronto Chapter, held on February 23rd, brought as guest speaker Professor R. H. Smalls, C.A., of Queen's University, a well known figure in the Accounting world, and he lived up to every expectation. Mr. Smalls is a well known speaker and an authority on Accounting and Cost Accounting, and his presence at this meeting was very much appreciated.

Hamilton.

The first March meeting of the Hamilton Chapter was again very successful, with thirty-one being present for dinner and fifty-one for the meeting. Mr. R. B. Taylor, C.A., Assistant Comptroller of the General Steel Wares Ltd., Toronto, was the guest speaker, and his subject, "Controlling Inventories," was very well received judging by the lengthy question period at the close.

The second March meeting will be held on March 22nd, when two members of the Chapter will give short talks and lead a discussion on "Setting up Burden Rates" and "Plant Layouts," and it promises to be a most interesting evening.

Kitchener.

For the February meeting three members of the Hamilton Chapter, in Chairman Walter Furneaux, Secretary Wilf McMahon and Past Chairman Ken Horton, led discussions on "Payment of Direct Labour," "Distribution of Maintenance Charges" and "The Allocation of Overhead."

There was a good attendance and some very lively discussions. In fact, the meeting only came to a close after two warning signals that the lights were about to go out.

For the March meeting, to be held on the 16th, Mr. W. M. Fanning of the Charles E. Bedeaux Company, will speak on "General Considerations

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of a Standard Cost Procedure," and this promises to be the very best meeting yet held by the Kitchener Chapter.

Niagara Peninsula.

The February meeting of the Niagara Chapter, held at the Hotel Leonard, St. Catharines, brought out a crowd of sixty-nine for dinner. Among these were thirty who journeyed by bus from Hamilton. To say that the meeting was a success is putting it mildly, and everyone enjoyed it. The speaker was Mr. C. Oliver Wellington of the firm of McKinsey, Wellington & Co., New York City, and his subject was "The Responsibility of the Accountant to Management."

The March meeting of the Chapter, to be held at the General Brock Hotel, Niagara Falls, on March 15th, will see Mr. Frank M. Post of the Union Carbide Company, Niagara Falls, N.Y., who will speak on the subject of "Accounting for Manufacturing Overhead," and it is hoped that a good attendance will greet him. Mr. Post is an old friend of the Society, and the Niagara members can be assured of a good meeting.

London.

Due to the fact that the scheduled speaker at the February meeting, Mr. J. P. Masterson of Walkerville, was taken ill just prior to the meeting, the members held a discussion meeting, which, despite the rather small attendance, was immensely successful, and London members look forward to more meetings of this type.

For the March meeting, on March 15th, R. F. Bruce Taylor, C.A., Chairman of the Toronto Chapter, will speak on "The Industrial Accountant from the Auditor's Viewpoint." Bruce knows his subject thoroughly and the members are in for a treat at this meeting. It is to be hoped that the attendance is well over par.

Windsor.

The February meeting in Windsor was a grand success, with no less than sixty-seven present for dinner. These included a large delegation of members of the Detroit Chapter, N.A.C.A., and their presence was very much appreciated. The speaker was Mr. Robert Peden of Detroit, and he chose for his subject "The Calculation of Standard Costs." Mr. Peden, or, as he prefers to be known, "Bob," is a grand speaker and he held his audience in grand style for exactly one hour, and it is safe to say that everyone enjoyed the meeting.

On March 23rd Mr. L. W. Downie of the Kelsey-Hayes Wheel Company of Detroit, will address the Chapter, and once again a big crowd is expected.

Fort William-Port Arthur.

The February meeting of the Fort William-Port Arthur Chapter was addressed by S. W. Willis, a director of the Winnipeg Chapter, and his subject, "The Application of Mechanical Equipment to Cost Accounting," was illustrated by motion pictures. Despite a rather small attendance, due to our enemy the "flu," the meeting was very successful. The following day fifteen members journeyed to the plant of the Canadian Car & Foundry Co. to actually see the mechanized equipment in action, and they were very much impressed.

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Toronto.

The next meeting of the Toronto Chapter will be held on Wednesday, March 22nd, when a Plant Visit will be made to the plant of the Canadian Kodak Company at Mount Dennis.

Following the plant visit the annual meeting of the Chapter will be held and dinner served in the Plant Cafeteria.

Mr. G. J. Marshall, of the Company, will address the members on "Job Evaluation," and following this Mr. W. S. Trotman will review "Recent Developments in Colour Photography."

Vancouver.

The first February meeting of the Vancouver Chapter was an enjoyable affair with a fair attendance. Mr. G. E. Marshall, of the B. C. Game Commission, presented films of the commission showing Fish and Game in the Province and the members were well rewarded for their attendance.

Literature Received

Costs and Statistics, Their Scope and Function.

The Accountants' Magazine. February.

In two parts: "Practical Application of Costing Principles in a Distributive Business" and "Practical Application of Costing Principals in a Manufacturing Business."

Saw Milling Costing From The Log To The Finished Product.

The Australian Accountant. January.

A very complete article, and one especially interesting to those engaged in this industry.

Wheat Production Costs.

Canadian Chartered Accountant. March.

A short but informativt article on a subject which is coming more and more to the fore.

Finished Goods Inventory Control.

N. A. C. A. February 15th, 1939.

Some Aspects of Inventory Control.

N. A. C. A. February 15th, 1939.

Probably no subject in Industrial Accounting is so much alive as this subject of Inventory Control. Here are two articles which should be read by all Cost men. They are both invaluable additions to literature previously published on this subject.

Internal Check.

Journal of Accountancy. March, 1939.

In view of the recent controversy in the United States concerning audits, this is a very timely article.

Control of Direct Labour Cost Variance in a Metal Goods Factory.

N. A. C. A. March 1st, 1939.

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Describes in detail the experience and the procedure adopted to develop labour cost variances in the form to provide maximum use in the control of labour costs. Also discusses alternative methods and is, in fact, a very valuable article.

Present-Day Practice in Accounting for Research and Development Costs.

N. A. C. A. March 1st, 1939.

This is one of a series of reports of the Research and Technical Service Department, N. A. C. A., dealing with present-day practice in various phases of Cost Accounting. It summarizes the practices of 106 industrial companies dealing with accounting for research and development costs and is well worth reading, and digesting.

Mine Accounting

(Being the subject matter of a lecture delivered to the General Accountants' Association on Monday, the 13th day of February, 1939, in the Biological Building of McGill University, Montreal, Que.)

By

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Lecturer on Mine Accounting and Administration, in the Department
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(Formerly with George A. Touche & Co., Chartered Accountants)

There is no need for me to remind you of the great benefits that accrue to an industry, and the individual entities that comprise that industry, from the use of accurate modern accounting methods, for I am sure that you are fully aware of them. It may surprise you to learn, however, that despite the signal and weighty contributions that have been made by Canadians to the solution of mining and metallurgical problems during the last two decades, the development of accounting methods for use in the recording of transactions entered into by companies occupied in the exploitation of our vast mineral resources has been almost entirely ignored.

The Canadian Mining Industry.

This is all the more strange when considered in the light of the relationship that mining bears to other industries. In the year 1937, the last year for which complete figures are available, the mining industry gave more employment and paid more wages and salaries than the pulp and paper, automobile manufacturing, chemical and primary iron and steel industries combined, the figures being as follows:

	Employees	Wages and Salaries Paid
Pulp and Paper, Chemical, Automobile manufacturing, Primary iron and steel.....	84,173	\$119,436,003
Mining	102,800	142,051,000

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In this connection, it may be remarked that the average annual wage paid in the Canadian metal-mining industry is approximately \$1,300 and exceeds the average of real wages—using the expression in the economic sense—paid in any other industry.

Moreover, the part played by our gold mines in the settlement of foreign balances is a factor of paramount importance to this country. Consider the situation during the difficult period from 1929 to 1935 inclusive. During these years, the goods we sold and the services we rendered to foreign countries were insufficient to meet our external obligations to the tune of some \$306,000,000. This unfavourable balance of trade was converted into a favourable balance of \$166,000,000 by the export of \$472,000,000 worth of gold that this country produced. The annual export of primary metallic minerals alone now realizes enough to meet almost two-thirds of the yearly interest and dividend payments on all Canadian securities held abroad.

These few figures are sufficient to indicate the reason why Canadians should be proud of their countrymen's achievements in the vital industry of mining. Yet, viewing the matter in a broad light, such is not the case; Canadians, as a whole, have but a very meagre knowledge of the industry and, more particularly, of those who made possible its present stature.

A short time ago, I had the privilege of hearing Mr. E. A. Collins, President of The Canadian Institute of Mining and Metallurgy, tell the story of the growth of International Nickel, that Canadian enterprise of which we are, or ought to be, so justly proud. As he unfolded the romantic story, he digressed for a moment to express surprise that no mention of such pioneers as those he referred to is to be found in the history books of our school children. Then he recounted that, while journeying to Toronto by automobile one day, he noticed a sign on the highway which indicated a turn off the road leading to the place where the first MacIntosh apple had been cultivated. The spot was marked by a plaque describing the historical event. He then enquired whether anyone knew where Benny Hollinger or Sandy McIntyre or Harry Oake's had placed their first stakes. Posterity, it appears, is to be deprived of such historical information.

I do not know the part played in our commercial history by MacIntosh apples, though I realize it is an important one, but insofar as Hollinger Consolidated Gold Mines Limited is concerned I know that this gold mine has already produced over one quarter of a billion dollars of new wealth, over 92% of which has been shared by the Canadian labourer, farmer, manufacturer, railroader and investor. Are the achievements of the men who made contributions to Canadian welfare such as this not worth more than a passing memory?

There are two main classes of mines in Canada, namely: placer and lode properties. The former were the main source of Canadian gold production during the period from 1858 to 1907, but are now relatively unimportant, particularly insofar as Eastern Canada is concerned. It is, therefore, to lode mines that our attention may be chiefly directed.

From earliest times, the surface rocks of Canada have been subjected to forces working from within the earth, during which mountain ranges

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were formed in the Pre-Cambrian shield. During the folding of the earth's crust that accompanied these tremendous upheavals, rocks formed by the cooling of melted rock matter were forced to flow upwards from within the earth and filled the fractures formed in its crust. The chimneys and masses (batholiths) which intruded caused shears and veins, which were in turn mineralized by solutions and gases coming from the same source. It is upon this association of intrusive rocks with shears and veins and minerals that mining prospecting is based, not only in Canada but also in other countries of the world.

Prospecting has been well rewarded in the Province of Quebec as shown by the successful development of properties in such districts as Rouyn, Siscoe-Lamaque-Malartic, Pascalis, Cadillac and Chibougamau.

There are now thirty mining properties in Western Quebec producing gold, copper, zinc and other metals, and their hoist 16,000 tons of ore per day. Their combined production during last year exceeded \$67,000,000, and during the first eight months thereof they paid out over \$6,000,000 in dividends.

When speaking in public of the mineral industry in the Province of Quebec, it would be unfair to fail to mention the consistent good work that has been, and is being, carried out by the Quebec Bureau of Mines. Those of us who are engaged in the business of mining have more than a good word for the sympathetic and helpful attitude we always encounter when discussing matters with the officials of that organization, and it was with the greatest pleasure that I heard the Minister of Mines and Fisheries recently announce that his department was offering a substantial prize for the best essay on the discovery and development of the mining resources of the Northwest Quebec. I may add that the present series of lectures that I am delivering on mine accounting and administration under the auspices of the Department of Commercial Education of the Montreal Board of Trade was made possible by the co-operation of the Department of Mines.

Preliminary Development.

During the early stages of development of a mining property, all expenditures are considered to be of a capital nature, and should be so treated in the accounting records and financial statements. The latter should show at a given date the manner in which cash has been disbursed, because the main expenditure account on the Balance Sheet, which would be entitled "Development Expenditures," should be supported by schedules showing the details of the operating accounts comprised in the total.

I do not intend to dilate upon the accounting methods used during preliminary operations because there are other stages of development which present a more interesting field for discussion, but will content myself with drawing two points to your attention:

Firstly, a common practice followed when preparing financial statements of mining companies is to combine the cost of properties, development expenditures and other expenditures into one account. It is strongly recommended that, in the interest of the public at large and shareholders in particular, the balance sheet be prepared in a manner such that the

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cost of the properties and of the development expenditures incurred thereon be shown separately, and that the general and administrative expenditures be set out in the Balance Sheet under a special heading immediately prior to that section of the statement wherein are grouped such deferred assets as organization expenses and discount on capital stock. This recommendation is based on the contention that those reading the Balance Sheets of mining companies engaged in the development of properties are entitled to know, and be readily able to determine without research: (a) the original cost of the properties; (b) the amount of expenditures incurred in their development, and (c) the cost of administering the company.

Secondly, balance sheets of mining companies rarely show the status of the properties owned, many containing such headings as "Mining Properties," or "Mining Claims." As there are significant and vital differences between mining claims under miners' certificates, mining claims under development licenses, mining concessions and patented mining lands, it is essential that the status of the properties be disclosed in financial statements, and failure to do so constitutes a material omission.

When a property reaches the stage where underground development is contemplated, it is very necessary that a complete cost system be installed, so that the benefits that accrue from proper inventory and labour control may be obtained. Such systems are not vitally different in general principle from those used in other industrial concerns, but they do perforce embody a number of peculiarities that relate to the mining industry.

The cost systems employed inculcate both process and job cost-finding methods.

Process Costs.

The process system is required because the raw material—the ore—passes through a series of continuous processes which leads to the manufacture of a finished product or, in the case of concentrates, a partly-finished product.

In most process cost systems, quantities are recorded by departments. In mining, however, there are usually only two periods where quantities are recorded: when transferred to the crushing machines on conveyor belts, at which time the ore is weighed in tons, and when ready for sale as a finished product, gold and silver being weighed in ounces or fractions thereof (dwts.), base metals being weighed in tons. Semi-finished products, known as concentrates, are also recorded in tons.

Again, in the majority of process cost systems employed in industry, unit departmental costs are computed by using the quantities produced by the departments concerned. In the mining industry, however, only one quantity is generally used throughout, namely: the number of tons delivered for treatment to the milling department.

It may be observed that this figure is subject to serious inaccuracies arising from the fact that the quantity thus recorded comprises ore plus moisture, the latter sometimes amounting to 10% or more. The amount of moisture varies greatly: for example, ore drawn from stopes wherein it has lain for a substantial period of time, generally contains less moisture than that drawn from development faces, because of the factor of evaporation,

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and therefore the figures showing the amount of ore treated should be adjusted to allow for the amount of moisture present.

The two main processes through which the raw materials of a mining company usually pass before being fashioned into finished goods may be illustrated by consideration of the following summary of operations:

Acquisition of raw materials:

Surface work—Prospecting, exploration and preliminary development.

Underground development—Searching for and blocking out ore bodies.

First process in treatment of raw materials:

Mining—Shattering of ore bodies into pieces of convenient sizes and transportation thereof to the site of the next process.

Second process in treatment of raw materials:

Milling—Reduction and metallurgical treatment of the ore, resulting in the production of a finished or semi-finished product.

The treatment in the accounting records of the cost of acquisition of raw materials deserves special comment, as it reveals one of the chief differences which exist between mine and other accounting methods.

Raw Materials.

According to present practice in Canada, inventories of raw materials are not established in the books of account, but are merely referred to in the mine manager's or president's report.

Expenditures incurred in acquiring materials fall into two classes: The first being a real account which is capitalized on the Balance Sheet and amortized over a specified period; the second representing operating accounts which are charged against revenue as an expense without any consideration of inventory valuation.

The class is determined by the date upon which the company enters production, which is fixed at six months after the day upon which the company started the shipment of ore or when milling operations actually started with a commercial milling unit.

Upon that particular date, the books of the company are closed and all operating accounts, with the exception of general and administrative expenses which are eventually charged to Surplus Account, are closed into one account, denominated "Expenditures incurred prior to production," or some similar name, which is written off to operations in five equal, consecutive annual installments. This is the real account previously referred to; the amortization of the balance is shown in a separate amount in operating statements.

Insofar as the second class is concerned, from the day the company enters production, all expenditures incurred in acquiring raw materials are charged against operations. It matters not whether one million dollars is spent which results in the acquiring of no new ore, or whether a few thousand dollars are spent which result in the discovery of a large tonnage of ore, the amount actually incurred in each financial period is that which takes its place as the operating charge.

It will be realized, therefore, that the cost per ton of ore treated in respect to development expenditures bears no relationship to the total cost per ton of ore treated or, expressed in terms of general accounting, the

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cost of goods sold. Development expenditures are of significance only when used in conjunction with the mine manager's report, for then a table such as the following may be prepared:

	Tons
Estimated tonnage of ore at hand at the close of the period	
—per mine manager's report	700,000
Tonnage of ore treated during the period—per financial statements or general report	300,000
	<hr/> 1,000,000
Estimated tonnage of ore on hand at the beginning of the period—per mine manager's report of prior year	400,000
Estimated tonnage of ore developed during the period	600,000
If the development expenditures were shown as \$360,000 during the period under review, or, as it would be shown in the operating statement, \$1.20 per ton of ore treated, it would be apparent from the reading of the report that they had resulted in acquiring 600,000 tons of raw materials, i.e., the actual cost of raw materials acquired was 60 cents per ton, and thus, ignoring the factors of the opening and closing inventories, the cost of raw materials treated was 300,000 x 60 cents, or \$180,000. It will be seen immediately, therefore, that the cost figure of \$1.20 per ton is misleading unless considered in conjunction with the appropriate quantities of ore.	

When considering the question of accounting for raw materials a further point is worthy of discussion.

Mines entering production invariably have stock piles of ore on hand which were built up during the execution of development work. In most cases the stock piles contain many hundreds or thousands of tons of ore, which, during the early stages of production, are mixed with ore drawn from stopes or development work to supply mill feed.

The cost of this work-in-process, not having been identified in the accounting records, the ore is delivered to the mill without cost, save that arising from the arbitrary write-off of expenditures incurred prior to production, which was previously referred to, and transportation charges, and as soon as this source of mill feed is exhausted, costs would be expected to rise and profits to fall. However, such is not necessarily the case, because the cost of the raw materials—the ore reserves—previously put into sight by development work, are charged against operations at the same arbitrary figure. The balance of the charge against operations for raw materials treated arises from expenditures incurred in searching for and acquiring additional raw materials, which would appear to be unscientific accounting. Yet, even this is not wholly true, because part of the development expenditures charged against operations during a given year may be a proper charge if a portion of the newly found ore is used during that period.

These complications in the accounting treatment of raw materials lead to a consideration of the accounting methods adopted by some mining companies in the United States of America. They consist of utilizing

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estimates of ore reserves for the charging of development expenditures against operations.

All development charges are carried into one main control account, which takes note of the ore reserves and the unit cost thereof. Thus, if, at the close of a certain year, the balance of expenditures incurred in development work amounts to one million dollars and the estimate of ore reserves is found to be one million tons, the cost of raw materials treated in the succeeding period is established at one dollar per ton. Subsequent debits are added to the account as development work progresses during the following period, and the unit cost of raw materials is changed as fresh estimates of ore reserves are prepared.

This method has the great advantage that it overcomes the grave fault which obtains under the Canadian system of not recording the actual cost of raw materials.

The whole question of accounting for raw materials is worthy of profound study, and it appears to me, under the reserve of further consideration which I have not yet found time to give the matter, that our accounting systems should be modified to conform with the practice adopted by those American mining companies which take account of ore reserves in their financial records.

The use of the process cost system in mine accounting enables the margin of profit per ton of ore treated to be computed; it also enables the management to maintain control over departmental costs. In my book on mine accounting and administration, I have related an incident, which occurred in practice, that serves to illustrate the benefits which may be obtained from the use of a good process cost system as applied to mining companies, and I venture to repeat it to you because I believe it to be somewhat striking.

A company producing gold in Northwest Quebec, for which a cost system was installed, prepares figures in comparative form, showing the cost per ton of ore milled in relation to the main divisions of expenditures. An examination of these figures at the end of a certain month disclosed that milling expenditures were greatly increased during the month under review as compared with the two prior months. The auditor was consulted, and unit costs were prepared for the individual accounts contained in the division of Milling Expenditures, whereupon it was apparent that grinding costs were disproportionately high. The vice-president communicated with the mine office, and was informed that the experiment of using rods instead of balls for grinding had been made during the month concerned. Thus the management was placed in a position to take immediate steps to discontinue an experiment that proved to be expensive.

Yet, in mining, as in other industries, the averaging of costs may lead to grave inaccuracies. The great majority of mining companies in Canada set forth their operating statements in a form similar to the following example:

Production (405,291 tons)	\$ 4,905,387	\$ 12.10
Development Expenditures	181,084	\$.45

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Mining Expenditures	1,114,326	2.75
Milling Expenditures	431,004	1.06
Head Office and Administration expend...	277,381	.69
Amortization of expenditures incurred prior to production	202,645	.50
	2,206,440	5.45
Nett operating profit for the year	2,698,947	\$ 6.65
Provision for Federal, Provincial and Municipal Taxes	431,738	1.06
Nett surplus for the year	\$ 2,267,209	\$ 5.59

Each of these main divisions reflect a large number of individual operations: Development expenditures comprise cross-cutting, drifting, slashing, raising, winzes, underground diamond-drilling and the costs of other workings; Milling expenditures in a cyanide plant would consist of crushing, grinding, classifying, agitating, thickening, pumping and elevating, clarifying, precipitation, filtration and other processes.

Considering the division of milling expenditures, it may be remarked that the various departments of a mill are engaged in specific processes which show comparatively steady unit costs, thus enabling the administration to observe any unusual fluctuations.

Such is not the case, however, where the division of development expenditures is concerned.

If the accounting system were confined to process cost-finding methods, the cost of the various workings would be expressed in terms of dollars per ton treated, i.e., figures would be prepared showing the cost per ton of drifting, cross-cutting, raising and so on.

This would entail the averaging of the cost of dissimilar operations because the work of drifting or cross-cutting, for example cannot be compared to a milling process such as clarification. During the latter, in general terms, a given quantity of work-in-process is treated for a given period of time, whereas drifts or cross-cuts may vary in length from a few to many hundreds of feet, and the rate at which they are advanced, or the rate at which progress in them is made, may also vary to a very considerable extent, depending on the structure of the rock and the operating methods employed.

Even if the factor of dissimilar operations could be disregarded, a grave fault, common to all process systems, would still exist, for the efficient and conscientious work of some shift bosses and their crews might merely offset inefficiency and lack of care on the part of others engaged in comparable pieces of work. The costs might give no inkling of this fact, particularly if the mine were large and there were, say, some twenty or thirty miles of underground workings.

Job-Cost System.

For these reasons, in order to promote efficiency and avoid waste or theft, it is essential to introduce what may be termed job cost-finding methods into the accounting system.

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Under this procedure each piece of work in the mine is identified and costed. In the operating ledger a control account is maintained for such expenditures as Drifting and Cross-cutting, the subsidiary accounts thereto consisting of the individual workings. The costs are determined day by day so that the mine manager and his assistants may be in a position to control the cost of workings and proceed immediately to investigate any discrepancies.

A large number of mining companies prefer to subdivide their operating accounts in a different manner. The Drifting account, for example, is used to control such subsidiary accounts as:

- Drilling and Blasting,
- Mucking,
- Explosives,
- Timbering,
- Tramming,
- Hoisting,
- Compressed Air,
- Steel-sharpening and Steel,
- Pumping,
- Sampling,
- Assaying.

It seems to me that this procedure is not as desirable as that of costing individual workings, because it tends to revert to the process cost method, thus leaving unremedied the faults attaching to the averaging of costs. If it were found, for example, that the cost of explosives appeared to be excessive in a certain period, it might be extremely difficult, particularly where large-scale operations are involved, to determine the source of the apparent discrepancy.

The accounting procedure adopted to record the two methods of cost-finding are those with which the accounting profession is familiar. The payrolls are broken down and distributed into departments, wages applicable to development and mining expenditures being distributed over the various classes of workings and the cost of the latter being further broken down to permit of distribution against the individual pieces of work.

A rigid inventory control should be exercised, all goods and supplies being subject to requisition.

Several large companies adopt the practice of allocating supplies purchased direct to a specific operation wherever possible, and make provision for such distributable columns as "Blacksmith Shop" or "Carpenter Shop" in their voucher registers. The practice is not recommended because it is evident that very few supplies purchased can only be utilized by one department.

More serious, however, is the objection that the procedure conflicts with the establishment of a fixed rule that all materials, supplies and goods of any nature whatsoever must pass through stores, thereby causing confusion and encouraging the accounting staff to effect as many direct distributions as possible in order to reduce their work.

The reduction of work to a minimum, commensurate with accuracy

COST AND MANAGEMENT

and efficiency, is praiseworthy, but such methods of direct distribution as those referred to cannot be said to diminish the accounting work to any appreciable degree.

Work-in-Process.

We are all aware of the fact that one of the outstanding difficulties encountered in process cost systems is the valuation of work-in-process. In the case of mining companies, this asset may be divided into two classes:

Solids—comprising ore in stopes, in bins, in ore pockets, and in stock piles.

Pulp and Solutions—comprising work-in-process in the mill.

According to present practice, the former is considered to fall under the heading of raw materials, inasmuch as the ore reserves noted in the reports of mining companies include this inventory in addition to that of positive ore. No account is taken of the asset in the financial records, with the result that the first, and possibly succeeding, year's profits are understated and the assets and surplus account remain permanently understated, until the inventories are used or the mine is worked out.

As for the inventory of work-in-process in the mill, suffice it to say that this asset, in by far the majority of cases, is not even referred to in the mine manager's report, much less recorded in the books of account.

Dealing first with the inventory of broken ore underground, you will recall that I have considered mining as the first process in the treatment of raw materials. I do so because it appears to me that, as mining expenditures are incurred in reducing raw materials to a size convenient for transfer to the next process, they may properly be compared to the cost of cutting (reducing) raw materials in, say, a dressmaking or glove establishment to required sizes preparatory to transferring the same to the next process.

In further support of this contention, it may be pointed out that if raw materials which have been treated by the process of mining are to be considered as having the same value as raw materials that have not been so treated, then it must be concluded that ore-in-place in a stope has the same value as would obtain were the ore broken in the stope. In other words, the cost of stoping is of no consequence.

As a matter of fact, such is far from the case; mining costs, in which stoping is the main factor, are very substantial. They include such processes as construction of drift backs and timbering of drifts or other methods of stope preparation, construction of chutes, breaking, mucking, timbering, filling, tramming, hoisting, sampling and assaying, which require the services of drillers and helpers, muckers, trammers and hoist men, and the use of explosives, timber, compressed air and steel.

A summary of the following mining costs of three companies will serve to illustrate the importance of the cost of the process:

Cost per ton of mining expenditures in relation to cost per ton of ore treated—

Gold mine in British Columbia (shrinkage method).....	\$3.977
Copper and sulphur mine in Quebec (shrinkage method).....	2.097
Gold mine in California, U.S.A. (open stull and cut-and-fill).....	2.436

MINE ACCOUNTING

Estimated inventories of ore broken in stopes may be established at the close of a given period by reducing the total of mining expenditures, under deduction of filling, tramming and hoisting charges, in the proportion that the number of tons delivered to the milling department—as determined by tramming and hoisting reports—bears to the number of tons treated during the process—as determined by engineers' reports—and charging the balance to an inventory of goods-in-process account, to which the cost of raw materials is added by a transfer from development expenditures. The same unit of valuation could conveniently be used for establishing the estimated inventory of ore in ore-pockets, and in bins, because of the quantities involved are not large, while the inventory of work-in-process in stock piles may be established by transfers from development expenditures, to which are added tramming, hoisting and stock-piling expenses.

Turning to the valuation of work-in-process in the mill, it should be borne in mind that, by the nature of milling operations, millmen are continually checking, among other things, the density and assay value of the ore to ensure that it is subjected to the proper metallurgical treatment. When a new mill is tuned in, or after a clean-up, it is true that there is absorption, i.e., quantities of mineral remain locked up in the circuit, but it would appear that entries could be recorded in the books to take care of this factor, even though they might be based on purely arbitrary figures. With proper attention given to the recording of raw materials, the accounting records might prove helpful in establishing the valuation of this inventory of work-in-process.

The costs of the various milling processes being readily available and the quantity of ore in pulp or solution being known, the calculation of the value of the work-in-process could be made by multiplying the total number of tons under treatment by development and mining costs, and adding thereto the product of the number of tons in each department multiplied by the milling costs accumulated in the various departments concerned.

These suggested methods of valuing goods-in-process draw attention to a further peculiarity which obtains in mine accounting. All raw materials are not subjected to the same processes because, although all ore is delivered to the milling department for treatment, quantities of it, made available as a result of development work, are not subjected to the process of stoping.

While this is a material factor during the early years of a mine's operation, it may be borne in mind that in a large mine the total quantity of mill-feed originating from development faces is very small when compared to the quantity obtained from stoping operations, and that as a mine progresses the development expenditures become less and less important.

It is for this reason that during the early stages of operations it would not appear necessary to establish each stope as an inventory of work-in-process account and make transfers therefrom as deliveries are made to the mill. However, no serious accounting problems are encountered if it is deemed desirable to adopt such a practice, and it would appear necessary to do so when the mine is fully established.

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Finished Goods.

The verification of the value of production during an audit is too often confined to comparing the figures shown by the books of account with the production records and sales contracts or, in the case of gold mining companies, with the mint returns.

In the case of gold mines, it is frequently the practice to pour a brick on the last day of the year, thereby endeavouring to establish each year's production separately. Sometimes, however, the brick is poured some days after the close of the financial year and the value thereof is treated in the accounting records as bullion in transit.

On one occasion I suggested to a mine manager that, as he had taken up 368 days' production into the accounts of his company's financial year, an adjustment should be made in respect to the additional three days. He replied that the adjustment was not necessary inasmuch as it would not change the circumstances to any material degree, pointing out that if he had put a higher grade of ore through the mill during the last few days of December, thereby establishing approximately the same value of production as was shown for the paid 368 days, the auditor would not have demurred; indeed, in all probability, he would not have been aware of the fact.

His reply, while somewhat disconcerting to an auditor, was most reasonable, and, from a practical point of view, incontestable. It serves to give a further illustration of the difficulties which are encountered when there is no inventory of raw materials available.

This factor of failing to take inventories of raw material into account, which has already been touched upon, must surely be somewhat unique in modern accounting. Indeed, I am constrained to believe that it is confined to the mining industry alone. It permeates the whole accounting structure and intervenes at every turn; particularly is it noticeable when considering the question of the verification of production.

A comparatively short time ago, a mining company producing large quantities of gold was approached by some individuals with a proposition to treat its tailings. The company's officials were unable to understand how such a project could be carried out commercially as their milling plant was efficiently operated and obtained a high rate of extraction, but they eventually acquiesced.

It transpired later that the individuals concerned, upon obtaining permission to treat the tailings, conspired with certain of the company's millmen to increase the value of the tailings by shortening the period required for the cyanide to dissolve the gold or by otherwise interfering with the agitation process.

According to my understanding of the matter, the conspiracy was discovered because the millmen became a little too ambitious in their artful designs and brought about tailings losses which were so high that, although the deceit was cleverly concealed by false entries in the mill records, the value of production was affected to a degree such that an investigation was ordered and the whole scheme was eventually brought to light. The

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amount of loss involved was quite large, as the organization operated for several months.

Experienced millmen can recount numerous ways in which theft can occur in a mill and losses can be suffered through inefficiency.

It is clear, therefore, that the mine accountant and the auditor should endeavour to play their part in the organization by doing everything possible within their power to ensure that the highest efficiency is obtained. Admittedly, verification of the value of production may be difficult until the mill has operated for a period of times sufficient to enable the technical staff, acting in concert with the accounting staff, to learn the whims and vagaries of the ore and the plant.

In spite of the difficulties encountered, however—and they are many—an effort should be made to reconcile the raw materials treated with the inventory of finished goods. Without taking into account adjustments arising from the opening inventories, the formula to be used is: (Assay value of ore treated \times number of tons of ore treated)—(Assay value of tailings \times number of tons of ore treated)=Inventory of finished goods+Inventory of work-in-process.

The number of tons of ore treated together with the assay value of the tailings may be obtained without undue difficulty. The assay value of the ore treated must be established arbitrarily as circumstances permit; some mines take assays every ten or fifteen minutes, and from the use of such results an average value may be determined.

The inventory of work-in-process in the mill may be estimated in the manner previously outlined, thus leaving the value of finished goods produced.

In the case of base metals, the inventory of finished goods is a certain number of tons having a certain average metal content, or certain average metal contents, and is usually valued at either the current market prices for the metals concerned or pursuant to the forward prices stated in sales contracts entered into, after making due allowance for various costs such as freight, shipping, insurance and handling charges. It will be realized that under these methods of valuation, profits are anticipated, which is unsound accounting practice. It should be stated, however, that some base metal mining companies do value their inventories in accordance with the costs shown by the books of account.

The inventory of finished goods of gold mines, other than those producing concentrates, is, of course, equal to production plus bullion on hand or in transit plus amalgam on hand. The latter class of finished goods might, perhaps, be more properly described as partly finished goods. The net value of the first two items may be readily determined from mint returns, but the latter may have to be estimated, after taking into account the milling methods employed.

In order to give an idea of the manner in which estimates of such partly finished goods may be made, and converted into the equivalent value of finished goods, an example is taken of a company having 6,678 grams of amalgam on hand.

As a result of experience, it is estimated that 50% of the amalgam

COST AND MANAGEMENT

consists of mercury and thus the sponge gold content is reduced to 3,339 grams. This sponge gold is considered to be 90% pure, thereby further reducing the content to 3005.1 grams. An ounce troy being equivalent to 31.103 grams of pure gold, the number of fine ounces is computed at 3005.1 or 96.617, which, at \$35 per ounce, is valued at \$3,381.60.

31.103

In view of the fact that the refining costs are comparatively small, it would not seem necessary to take them into account. However, as they would be relatively stable and easily ascertained, they might well be deducted from the value of \$3,381.60.

Under present practice, no account of partly finished goods is taken in the accounting records of gold mining companies.

Conclusion.

From the brief outline of mine accounting that I have been able to give you during the time at our disposal, I believe you will agree with me that a great deal of research work should be carried out in order to obviate the weaknesses that are inherent in our present methods of accounting for mining companies.

Believing that we, in this country, are singularly blessed in the extent of our mineral resources and those whose ability, courage and initiative make possible their exploitation, I am convinced that an investigation should be made into present mine accounting practice in order that the full advantages which accrue from the use of correct accounting methods may be derived and utilized for the future benefit of the industry as a whole.

I therefore suggest that the Minister of Mines and Natural Resources of the Dominion Government, in conjunction with the Ministers of Mines of the various provinces, the Canadian Institute of Mining and Metallurgy and the recognized accounting associations, devote careful consideration to the subject of mine accounting with a view to appointing a commission to be charged with the preparation of a treatise on it, setting forth standard methods which may be made available to the industry.

Undoubtedly there are a large number of fully qualified accountants and engineers who are sufficiently imbued with public spirit to undertake the task, the greater part of the cost of which could probably be defrayed by the proceeds from the sales of the book.

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The Credit Executive, His Work and Philosophy

By

E. E. WEBSTER, M.C.I.

Assistant Manager, Canadian Credit Men's Trust Association Ltd.

An Address Given Before Montreal Chapter, Canadian

Society of Cost Accountants and Industrial

Engineers, On January 16th, 1939

I deeply appreciate the honor given me to address you to-night. For one who is engaged in credit work, I feel myself somewhat in the position of the CBC radio announcer who was sending his son to an exclusive school in this city. After a while, the father called the son aside and started to ask the boy about his progress at school. The father was quite proud of his position as radio announcer at the CBC, so he said to his son: "Did you tell the boys at school that your father was a CBC radio announcer?" "Yes, dad," the boy replied. "Did you tell Smithers, the lawyer's son?" "Yes dad." "Did you tell Jones, the doctor's son?" "Yes dad." "Well, what did they say?" "Well, dad, they were awfully decent about it."

My hope is that when I have finished speaking to you to-night that you, too, will be awfully decent about it.

I do not stand before you this evening in the role of an expert, but simply as a man in my profession to talk a few things over with you, in the sincere hope that you and I will derive some benefit therefrom. In our daily tasks, your profession and mine has one definite goal, which is "profit." As my story unfolds, I hope to show that we have more in common than this, however, because a lot of water must pass beneath the bridge before the final goal is reached.

Obviously, in a talk of such short duration as this, the various angles of credit work can only be slightly touched. Credit is a phase of distribution, while credit work is primarily fact finding, coupled with intelligent interpretation and co-operation. It is one of the most complex, perplexing, irritating afflictions known to science. It is practically unlimited in scope and ranges from "a nickel till next Saturday" to millions of dollars in international transactions. Its use does not increase the stock of economic goods in the world. That is easily understood when I explain that products produced are the result of capital investment. Selling price not only includes cost and overhead, but also a fair margin of profit. The moment merchandise is shipped to a customer on credit the result is a transfer of goods from lender to borrower.

In considering the granting of credit for business purposes it certainly will not be the part of a safe policy to advance credit merely because a man asks for it. On that basis every living person would qualify. Quite often it is necessary to continue to extend credit to a business so as to help

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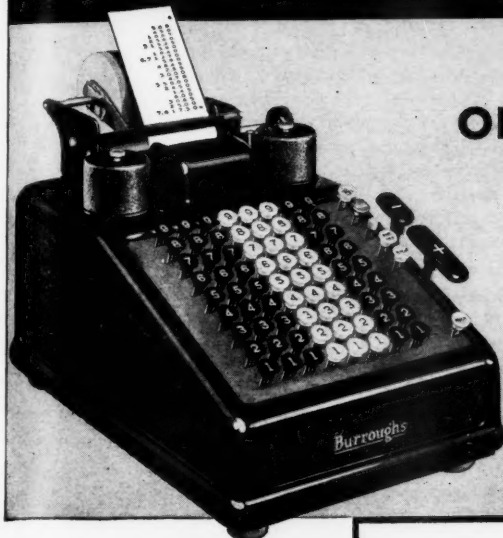
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*

1	0.4	5
2	5.6	0
3	1	5.2
	3.9	0
	10.4	0
6,7	1	2.7
	5.9	0
	4	0.6
	2.5	5
	3	0.0
	4.7	8
3	5	0.0
	2	4.5
	1.4	5
	6.0	0
	3	0.6
	5	
7,5	7	4.8
	0	*

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it out of its difficulties and to prevent what otherwise might have resulted in a loss. The Good Samaritan, for example, had nothing to recommend him as a credit man. He gave credit to a chance acquaintance without hope—he gave credit at a time when his debtor was past making a promise—but he did something that all successful credit men must do—he gave credit when it was required for the most good. Credit should be extended only to legitimate business.

"Big schemes" make money for the schemers only, and "pipe dreams" don't even make money for the dreamers.

The three C's of credit are: Character, Capacity and Capital.

The greatest thing in a man's life is "character." Character is the outcome of moral qualities. Our whole commercial system is built upon faith, honesty and trust. Credit is the ultimate of these.

A few words should be said about capital and how acquired. While at first glance it may seem a matter of little importance how a merchant's capital was acquired, yet by closer inspection it will be seen that this has a direct bearing on his credit title. \$5,000 in the hands of a man starting in business is not nearly so much of an asset, if inherited, as if it were the result of diligent saving on the part of the man himself. During the years it has taken to save up that sum, the man will have learned through self-denial and frugal living, to know the value of money, and the knowledge thus acquired is not likely to desert him when he starts in business for himself. He is almost certain to continue his practice of frugality and is accordingly not likely to spend his hard earned dollars foolishly. The beginner in business who finds himself in possession of capital before he has learned to take care of it is in danger of losing his money through ignorance and inexperience.

I met a young man a year ago who had gone into business for himself. He had studied hard and learned his trade. He had the hope he could serve his community for his livelihood then, and for his future security. After a few months he got into financial difficulties. He asked me to drop down one evening. I did. I found his business tied up with uncollectible accounts and a lot of obsolete merchandise for which he had paid far too high a price. He asked me what I thought of the situation. I said I could sum it up in a few words: "You have not been practical." He cried. That night when he locked his door he did so for the last time. A business man requires to be practical, the less practical he has been the more surely will be the condition I have just related.

The problems of the embarrassed or insolvent debtor are important to the whole business structure. They affect many things, among which are profits, merchandising, as well as the obligations of merchants who are not in debt; in fact, they affect the well-being of the whole industry.

To an account which shows signs of getting into difficulties, there is a definite obligation on the part of the credit executive to assist all he can, by counselling, urging, and at times insisting, that it take very definite steps to improve.

Some credit men unfortunately fail to place much confidence in a policy of rehabilitation; there perhaps are many reasons for this, the

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principal one being that such an attitude means additional work to one who often is overloaded with various duties and given insufficient assistance.

Whatever the cause is, in my mind, it is an inspiring obligation of helping merchants to replace the tendency of becoming more and more involved in debt.

A few weeks ago I read an interesting article concerning dealer advertising in Canada. It went on to relate how dealers in certain lines of business were continually flooded with advertising literature from 30 to 50 firms, advertising as many different products. In a survey recently made in a large Canadian city it was found that the basements and back sheds of many dealers held hundreds of dollars of show cards—window streamers and the like, much of which had never been used. Further, that an annual waste of 50% took place in this type of advertising, and in some cases it ran as high as 90%. Think of this as a waste.

To me, a dealer is not so much interested in advertising the product; he is interested in selling it and making a profit.

A shoe store in this city once used streamers to advertise a special sale of shoes. A lady went in to purchase a pair. The salesman who waited upon her found there was a slight variation in the size of each foot. Whereupon he informed the purchaser that she had one foot larger than the other, and to which the reply was given: "thank you" by the lady in disgust. In another store she was politely told that she had one foot smaller than the other; this pleased the lady, so she bought. See the difference in salesmanship, and simply because the first store had a poor sales clerk it lost a sale, and so did the manufacturer.

Now you are probably wondering what all this has to do with credit. It has a lot; the chief reasons being that unless the merchant sells your goods you are going to have difficulty in getting paid, or you are not going to sell him again.

The careful manufacturer or wholesaler, before extending credit to a retailer, will always assure himself that the latter "knows his business." This expression, however, may be made to mean much, or little, according to the standard of the credit granter. For example, it may mean merely that the credit seeker knows quality and prices, or it may imply a broad understanding of material, manufacturing processes, selling quality, and market. It may also include a knowledge of storekeeping from the viewpoint of attracting and holding trade by means of well kept store premises together with courtesy and tact on the part of the proprietor and his helpers.

It all harks back to the fact "that we must place more stress on a programme of education and business service" which will result in creating better merchants. After all, modern business, to use a catch phrase, is just horse sense, without the buggy.

Business contingencies are so numerous and so difficult to anticipate that a certain amount of reserve in the form of realizable assets is necessary if the risk is to be acceptable to a conservative creditor.

That a dealer's assets should exceed his liabilities is a necessary condition of his commercial existence. Unless they do, he is insolvent, and hence without any credit title whatsoever.

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The test of a good credit policy is not that it prevents losses, but that it accepts as much business as possible. A business building attitude will accomplish far more than a negative, hesitant one, which rejects anything having unfavorable factors. In testing the efficiency of a credit department it is necessary to take into account not only losses from bad debts, but also the losses from rejected business. Generally, the credit policy of a firm should take into account four factors:

- 1—Sales policy.
- 2—Margin of profit.
- 3—Effect on production problems.
- 4—Capital limitations.

If you should ask the average credit man what his annual bad debt loss is, he would probably tell you that it is one, two or three per cent. of total sales; the smaller the loss in comparison with sales the greater will be his pride, but is he right? Let us see. If an age analysis of his receivables was made at regular intervals, say quarterly, he would be struck by the fact that his average loss of from one to three per cent. was due to these conditions:

1—The bad debt loss on the great number of his accounts which were paid promptly was zero.

2—The loss on another large part of his business which was usually paid within 30 days of delinquency, was very small.

3—The bad debt loss on the small part of his business which ran several months or more slow was exceedingly heavy, running from as high as ten or twelve per cent. of all accounts 60-90 slow to between 35 and 50% on all accounts six months slow. Let me quote a few authorities on surveys made of losses on accounts six months slow:

United States Department of Commerce	32%
National Retail Credit Association	35%
American Credit Indemnity	50%

As a rule, a firm's gross margin is large enough to absorb normal bad debt losses and leave a regular profit. Any such excess losses, however, eat deeply into profits otherwise made.

Let us look at this fact. If a firm is making a ten per cent. net profit on sales, then it will take \$1,000 worth of good business to offset each \$100 lost on bad debt. It is taking a ten to one chance.

A man has to say to-day, whether he is in the retail, wholesale, jobbing or manufacturing business: "I am in business essentially to make money from my customers and not for my customers."

An ancient proverb says that "experience is a good teacher" and to which some wit has added: "It ought to, because it costs plenty." The test of success in business is to make money. Money gives us the opportunity to do things. Until the cash comes in the company makes no profit. Without money a man fails to meet his obligations and finds no comfort in his business or in his life.

In many respects, competition has to-day driven prices down to a point where a loss of merchandise values or a few extra bad debts might wipe out the season's profits of a business. Unsaleable merchandise and slow

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paying accounts are the principal holes through which profits drop out—it is oft-times hard enough to earn a profit—but to lose it once made is disastrous.

When the city sales tax went into effect, you will recall there was a lot of misunderstanding about it. Particularly well do I recall a remark made to me at that time by one of the smaller merchants who kept a very simple set of books: "My brother keeps my books," said he, "but I can't explain anything. Each time a new tax comes in they say we must have a bookkeeping system—believe it or not, I have high blood pressure and the count goes up each time one of the inspectors comes around."

I am now going to make a statement which perhaps will sound strange to you. Notwithstanding the strides in accounting practice—notwithstanding the plentiful supply of accounting talent, it is deplorable to a credit man to see the lack of proper accounting methods in many businesses to-day. So many merchants fail to keep an adequate set of records that their undertakings are in mortal danger. They have no real system or any way of accurately knowing whether they are making money or not. The excuses we hear so often—such as: no education for books, too busy, I left school at thirteen,—slips of paper tossed into drawers.

To-day with trade-in allowances, with large sums spent for servicing—delivery and of large drawings from the business; all are equally costly.

Take the question of mark-ups. Merchants to-day, in many respects handle various lines—with varying discounts. A man with a good set of books knows that if he is allowed a 40% discount from list he can make a net profit of let us say 9%—by the same token he would also know that a discount of 20% from list results in an 11% loss. Unfortunately, so great a number are without proper sets of books that they do not have the slightest idea of their costs, nor do they know how to buy.

Resultant losses with possibilities of continued future disappointments all effect the granting of credit. Certainly the time is overdue for the two groups, accounting and credit, to combine and use their influence for a correction of this condition.

Credit men often flounder upon the sands of uncertainty because they cannot get accurate information as to a dealer's assets and liabilities—it isn't the difficulty in getting the statement, but the two big questions are: is it right and is the value there? It is my humble opinion that the day must come when a merchant shall be obliged to have his books audited and his financial statement issued over the signature of a qualified accountant. In many cases it is just as inadequate for this type of business man to attempt to be his own bookkeeper as it is to be his own lawyer or physician.

I venture the opinion that right in our own city there are hundreds of merchants who couldn't begin to prepare a statement of their affairs, and who have not taken stock in months, even years. With all our modern ideas, our streamlining of this and that, we still lag behind in bringing our smaller merchant up to date.

To the average credit executive, the world sometimes appears to be full of merchants whose imaginations are greater than their capital—often it is only one out of a hundred who makes a noticeable success; some may drift

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along indefinitely, hounded by sight drafts and overdrafts, while others sooner or later fail. At the same time, these many merchants represent a volume of business that the seller cannot ignore; true, their credit may be questionable, but this is where the tact and diplomacy of the credit executive comes into play.

Then there is constantly brought before the credit executive an amazing amount of what is termed "dry rot." Slipshod methods, coupled with unprogressiveness in processing and selling.

It is an old plant operated by old machinery, carrying an old mortgage, turning out old style goods, sold in an old fashioned manner. Such is the answer to a recent credit enquiry. This description is what is called "dry rot."

The problem of credit is all important in building a good dealers organization. The big task to-day is often not credit or selling, but rather the keeping of dealers who have a right from the standpoint of solvency to handle the product. In many small and some large businesses the normal net profit is in the vicinity of three per cent.; surely not large enough to permit of much looseness in merchandise adjustments or credit losses.

Modern ideas have made men understand that business confidence does not thrive in the dark and that credit, to be free and untroubled, requires the fullest light to be admitted to the conditions which surround its transactions. To-day credit grantors, in their demands for financial statements are endeavoring to embody question which probe more deeply into the merchant's status than was formerly the case.

For instance, the make-up of the inventory is important; are the goods fresh and saleable; have they been properly depreciated if unsuitable to immediate demand? Is the inventory heavy or light? For instance, a toy shop with a heavy inventory at November 30th and a light one at January 30th would be the correct proportion; a millinery manufacturer's inventory at November 30th which was heavy would be wrong. In lines subject to seasonal change the vintage of the inventory is vital; even if style stays, price often changes.

Then there is the popular ratio of two dollars of current assets for each dollar of current liabilities. This generally allows for a necessary shrinkage in assets. It is my opinion that this ratio should, in some cases, be higher and in others lower. Experience has often shown that working capital—the difference between current assets and current liabilities—should equal current debt. The question of ratios is a big one, simply because they vary with business conditions—as prices rise, so should the ratio—so as to allow for a drop later on. My pet ratio is to take cash, receivables and securities and compare them with current debt—usually a one to one ratio is thought satisfactory.

Quite often a factory or merchant is a long distance from source of supply, hence is obliged to carry a larger inventory than the city merchant; take the paper industry—logging operations are generally seasonal, hence heavy inventories at certain times of the year; it all is a matter of judgment and experience—each credit executive must in his own line know these things.

One consideration upon which credit is extended is conditions, the

THE CREDIT EXECUTIVE, HIS WORK AND PHILOSOPHY

business scene moves rapidly at times. A good credit executive cannot trail behind, unless he is satisfied with left-overs. He must read trends and reasonably interpret them—Dominion and world-wide.

In his final analysis he must rely on his own training and experience to reach the proper conclusions. Such problems cannot be solved by inflexible rules. Conclusions reached by one set of credit men may differ just as competent physicians may differ in the diagnosis of the same case.

In a very substantial degree increased turnover and production are as much a credit department responsibility and opportunity as they are a sales department responsibility and opportunity. Production and marketing cannot be expected to maintain stability alone, for they are only the advance steps to the creation of receivables. The credit department must regulate the establishment of sound receivables and then intelligently convert them into cash.

This converting of receivables into cash also has its own problems. Money and credit are fairly cheap to-day, so in a number of cases there is great danger of a firm neglecting to push collections, simply because it is oft-times easier to borrow from a bank than to collect. This applies particularly to many retail merchants and the small single proprietorship in the manufacturing or jobbing line.

For instance, the cash discount premium is the nearest thing to "something for nothing" available to the business man. Then why do so many fail to take advantage of it? Simply because they have not the cash, and my experience has been that one big reason why they have not the cash is because too much of their money is locked up in slow accounts.

Slow accounts tie up capital and prevent it from making a profit, yet many business men permit and encourage their customers to be slow pay, believing that they get more business that way—whereas slow accounts actually cause loss of customers due to the inevitable hounding to finally collect.

Let me give you one illustration from an analysis I made a few weeks ago. This firm had \$34,000 of accounts receivable with \$25,000 in payables. Breaking down both, it was discovered that nearly \$10,000 of receivables were slow 90 days and over, while payables were likewise behind \$8,000 odd dollars.

Out of the receivables 60 to 90 days slow 28% had stopped buying—while 52% of the total 120 days and over slow had also stopped.

Slow accounts are expensive to carry in more ways than one. The money owed just does not roll in—there is the expense of bookkeeping, preparing statements, reminders and letters, telephone calls, car fare, postage and so forth; items the customary interest charges do not begin to cover—you figure it out some time. The importance of liquidity cannot be over stressed. Getting a fast turnover of capital is important if a high rate of profit is desired.

Now do not ask me how to collect money—it is an art or science in itself; then, you cannot collect from all men by the same methods; most money in the wholesale field is collected by letter, and a lot depends upon how you "attack." Experience has been that outside of the instalment or

COST AND MANAGEMENT

lien contract field, form letters are weak and of little value, because their effectiveness soon wears off. I know of a wholesale firm in Toronto which sends out form collection letters, and numbers them—number six is the last of their series; need I explain why it brings in more money than all the rest?

Now, I am not going to attempt in detail to tell you how to write letters; no doubt many of you could teach me a thing or two; then I could, if your patience held out, stand here all night telling you how to do it, but unless you practice in the business field to-morrow, and many days following, my teaching is in vain. It is the experience you must have.

A day or two ago, I saw a letter written by the sales department of a fairly large firm. It was thanking the customer for his past business, and expressing the hope that 1939 would be the best year "you ever will have"—in other words, after 1939 the customer could never hope for a better year.

What I am aiming at is the necessity of getting away from the time-dishonoured jargon of some correspondents—the ritualistic hocus-pocus of many letters, which waste time and discourage the merchant and business.

Never Write in Heat of Temper.

Perhaps some of you know the story about Abraham Lincoln's free-eating Secretary of War, Mr. Stanton. It appears that Stanton had been exasperated and he brought to the President a letter he was about to dispatch. It breathed fire. The President listened and said: "That's fine—but make it stronger." Stanton revised it and brought it back "red hot." "That's fine," said Lincoln. "That's exactly what that man deserves." "Then I'll send it," said Stanton. Lincoln looked up in astonishment. "Send it? You're not going to send it. I thought you were just freeing your mind—tear it up!" Even in freenig one's mind Stanton is not to be imitated.

The big problem is to find the proper approach to debtors. Avoid too much soft soap, and do not rely on the persuasive threat of the lead pipe. Collection letters must cut through indifference and start the train of thought that the account must be paid; the same old forms and phrases tend to lull debtors to sleep. Variety keeps the attention of the debtor awake.

Certainly, gentlemen, you cannot tack the title "Collection Manager" on the outside of any man or woman. It is essentially a matter of growth, development and improvement. Salesmanship plays a very important part in collecting money as it does in many other of life's accomplishments. You take salesmanship away from the practice of law and you have a defeated lawyer, the same in medicine; the same in your vocation and mine. Human nature is universally the same—we all respond to the proper motives.

We all may try to educate our customers to conduct their business upon proper lines and achieve a fair amount of success, but we must learn to accept a lot of people for what they are. None can ever hope to change the life-long characteristics of men. We cannot make people over—do not try—then we might make them worse. Then we cannot treat people

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like "things" and drive them like a yoke of oxen. We must be advisors, not dictators.

Whatever way you look at it, business is people, and business will succeed or fail as it serves people; mistakes we make (shall always make) should but guide us to future avoidances in each case; in credit work encouragement and appreciation accomplish far greater results for good than does criticism. Going through this life, the thing which constantly surprises me is the increasing number of business men who require leadership—how they will "open up readily" to anyone who conveys the impression that "he knows"—this is definitely true in the credit and merchandising problems of the ordinary merchant. It is all a matter of knowing how.

To me, one of the joys of my work in the Association I represent is its lack of routine—one never knows what a day may bring forth. It is our business to be ready for whatever comes along, and to go about solving it with the best knowledge and assurance we can attain.

People are always wanting something new—something different. See what public demand for beauty and speed has done in the automobile business. This is true of almost any business.

Look what invention and ingenuity has done and is done to the ice business. Look what the radio did to the gramophone business. The same can happen to any industry any time.

Theodore Roosevelt once said: "Every man engaged in a line of business owes to the business that he obtains his livelihood from, a certain amount of work toward the upbuilding of same."

Many of us in the credit profession are striving toward this end—better information on which to base credit judgments and a minimizing of the bad debt waste.

We have assumed the obligation to preach the gospel of better credit as well as to practice it in our individual capacities, like Mr. Sheldon, who gave to Rotary its famous "motto," we all believe that "he profits most who serves best." We believe in the equation that "no job is worth having unless you are learning as much as you are earning.

We all realize, as you do, that the whole fabric of industry rests in the final analysis upon the ability of each individual in it.

The dishonest business man is no less guilty of theft than the man who enters another's house and steals therefrom. All men in business should conform to ethical practices.

Ethics mean a code of principles laid down and followed by members of an association of men to govern their own conduct, their relations with competitors and with the public whom they serve. The oldest and strictest code of ethics in the world is that of the medical profession, which dates back to the fourth century. Find a single physician who dares to violate it and you will find ten thousand who conform to it. Yet that group as a whole is no different in substance than your profession and mine.

It is up to us, as leaders, to show by our efforts that we shall do our level best to stamp out unfair competition, shady deals, misleading advertising and all like undermining influences which harm and injure business. We have always had competition: pirates on the high seas and, yes, Indians

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around the settlements—our fathers had those things to contend with—in our day it's house-to-house selling, chain stores, mergers, governmental regulation, curb service for this and that; bus and truck transportation, and who knows what lies in wait for us around the corner, but—if we play the game for the sake of the game, we need not worry about the future—such is the philosophy of most credit executives.

In closing, and I must hurry as time is passing, I would like to leave these few thoughts with you: we are living in a day of vast and rapid economic changes. It is doubtful if there has been a period in the history of this continent wherein the success of a business concern depends so much on the intelligence of leadership. We all need the strength that lies in union. The man who squares off to fight with his hands in his pockets is defeated. "Let not thy right hand know what thy left hand doeth" may be good scripture, but it is a poor business policy.

If business has taught me any one thing, it is the truth of that statement of Towson's, namely: "The biggest thing in business is not machinery, materials or markets, but, rather, men. The biggest thing in men is not muscle, but soul, know men and you know business."

Credit work is one of the most interesting positions in business. It involves power and responsibility—two characteristics loved by every man. I often tell credit men when speaking to them that mental alertness, a good memory and the ability to think quickly are among the important groups of things necessary to them, and then I illustrate by quoting that famous story about Lloyd George. I trust will bear one more repetition here, and even though you may not be credit men, you will get what I mean.

Lloyd George was addressing a meeting some years ago when a woman interrupted him and said: "Say, if I was your wife I'd give you poison," and to which Lloyd George replied quickly: "Madam, if I was your husband I would take it."

You who are members of a worthy society realize the advantage accruing to you through co-operation. Men do things together—that man who cannot get along with other men is at a distant disadvantage. I believe that all of us should take our respective professions seriously—that you with us must keep hammering at those who so far are not with us—telling them of the benefits we all have received by uniting under the banner of better business conditions.

Your Society continues to direct broad and far-reaching educational program, designed to assist those who have a big job to perform in the advancement of Canadian business. Business supplies human needs. Business is life, and life goes on irrespective of gold standards, tariffs and floods.

We are not, I hope, in the same position to that where a man said when asked "what are the conditions in Ireland?": "We are in a devil of a fix. In the North they are all Protestant, in the South they are all Catholics—would to goodness they were all heathens so they could live together like Christians.

Forum Section

Below we give you a rather lengthy question, or a series of questions, submitted by a member who desires, if possible, to obtain the answers. We submit these question in the hope that some of our members will be able to provide the answers. We ask that anyone reading this section, and knowing what is required, will not hesitate to reply immediately. Names will not be mentioned in this connection, but rather an alphabetical letter will be assigned to each reply for purposes of publication.—Editor.

What is the proper procedure for the Cost Accountant under the following circumstances:

1. Standard costs are not used;
2. Costs are calculated semi-monthly and, to a very large extent, are used to determine sales prices;
3. The article sold is a food product where competition is keen and margin of profit is small;
4. The product is new to the manufacturing company concerned and no reasonable estimate of probable volume can be predetermined. (However, it is a well established staple line);
5. The particular item of material involved is so-called wood or fibre-board, made up into boxes, printed, and purchased as completed boxes which are an integral part of the product sold, or, in other words, are not returnable containers, they are part of the cost;
6. The purchase contract was essentially as follows:

Time—One calendar year.

Minimum quantity—750,000 one-pound boxes, 250,000 two-pound boxes; that is, contain one and two pounds net.

Price—Ten cents per box in the above ratio, for both the one- and the two-pound boxes.

Price variation—Any variation from the above ratio of quantities, i.e., three one-pound boxes to one two-pound box, add two cents per box irrespective of size.

Penalties—At the end of the calendar year, should the purchaser have failed to purchase and take delivery of the minimum quantity, penalties would be exacted on the basis of an increase in the price on the actual quantity purchased as follows—

Any quantity under 500,000 will be paid for as 500,000, at a total cost of $11\frac{1}{4}$ cents each;

600,000 at a total cost of 11 cents each;

700,000 at a total cost of $10\frac{3}{4}$ cents each;

800,000 at a total cost of $10\frac{1}{2}$ cents each;

900,000 at a total cost of $10\frac{1}{4}$ cents each;

but still subject to an additional 2 cents per box for unbalanced ratios.

It should be added that the foregoing is essentially the terms of a bona-fide contract tendered by a reputable box manufacturer, and contracts of this general nature are not as unusual as I at first thought. The explan

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ation given me for the price variations, was that a standard sheet of cardboard as manufactured lent itself to cutting out 1- and 2-pound boxes in the given ratios with a great deal less waste than either the 1- or 2-pound boxes individually.

Question: On a semi-monthly cost accounting set-up what price should be charged to the one-pound unit and what to be charged to the two-pound unit?

How are the variations to be handled semi-monthly, pending a final determination of the average trend as between one- and two-pound units?

As a Cost Accountant, how would you treat the following every day transactions in commerce and industry?

Raw Materials.

Yeast, for instance, is sold at a pre-determined base price, less a rebate at certain periods on basis of volume consumed.

Presume weekly cost statements are made. Cost is 30 cents per pound, less a rebate at the end of the month as follows:

If the quantity used exceeds 1,000 lbs., rebate of 2 cents per pound.

If the quantity used exceeds 1,200 lbs., rebate of 3 cents per pound.

If the quantity used exceeds 1,500 lbs., rebate of 4 cents per pound.

You use weekly as follows:

Feb. 5 to Feb. 11—200 lbs.

Feb. 12 to Feb. 18—350 lbs.

Feb. 19 to Feb. 25—500 lbs.

Feb. 26 to Feb. 28—150 lbs.

1,200 lbs.

Mar. 1 to Mar. 4—400 lbs.

1,600 lbs.

How do you account for the above on a weekly cost basis?

Containers.

Cost statements are rendered monthly. Lines vary widely and there are constantly changing requirements for corrugated box sizes. A given line of product may start badly, eventually boom and then taper off. Boxes have to be purchased with this fluctuation in view. The catch here is quantity discounts and what is known as a "set-up" charge.

You have the following purchases to absorb (it is presumed they are all used):

Jan. 31—1,000 No. 1 boxes at \$10.00	\$ 10.00
Set-up charge	4.00
Total cost	14.00
Feb. 28—10,000 No. 1 boxes at \$10.00	100.00
Set-up charge	4.00
Total cost	104.00
Mar. 31—100,000 No. 1 boxes at \$10.00	1,000.00

FORUM SECTION

Less carload discount rate 5%	50.00
	<hr/>
	950.00
Set-up charge	4.00
	<hr/>
Total cost	\$ 954.00
(This is a daily occurrence in some firms.)	

Inasmuch as cost accounting is essentially a matter of combining dollar values with quantities to arrive at a unit value, what procedure would you follow to overcome the following difficulty, which is taken from actual practice:

On a construction contract which was let on a unit price basis (that is, the contractor gets paid a stipulated price per unit for such items as rock, excavation, concrete foundations, etc.), the unit figures for the first five periods worked out correctly and were substantially lower than the price received. In the sixth period the unit costs were more than the contract price.

The Cost Accountant concerned realized there apparently was something amiss, rechecked all figures, found no errors, and presented the results to the engineer in charge, who also realized there was a discrepancy somewhere, as the engineer knew from daily inspection that work had been progressing even more favorably during the sixth period than previously.

The engineer in charge was a busy individual, was positive the Cost Accountant was wrong somewhere and fired him on the spot, with the idea of hiring another and better cost man.

Our Cost Accountant, however, was anxious to retain this particular job, and did a little heavy thinking, arriving by a process of deduction and elimination at the conclusion that if his dollar values were correct, and of this he was positive, the quantity figures must have been wrong.

Fortunately, he had some knowledge of how to use a transit and borrowing one set to work and ran all the necessary levels, re-checked the quantities which he had received from the Field Engineer and discovered the error had been made in the field, proved the fact and retained his job.

Suppose you had held this job and were not capable of checking the quantities, what steps would you take to make sure that the quantities you receive to work with are correct, and to protect yourself from the wrath of a busy executive who is very apt to blame the person who presents the report rather than try to divide the blame among several individuals?

This is a more common occurrence in practical cost accounting practice than is generally realized.

Ordinance No. 4 of the Quebec Fair Wage Board offers some bright practical problems for the Cost Accountant in normal every-day practice. Particularly that section of the Act which stipulates that 50% extra has to be paid those workers who work less than three hours per day or less than 30 hours per week.

Another item which can cause plenty of headaches is the fact that a worker at—

\$22 per week has an overtime rate of 49.5 cents per hour.

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- \$24 per week has an overtime rate of 53 cents per hour.
- \$26 per week has an overtime rate of 56 cents per hour.
- \$28 per week has an overtime rate of 59.5 cents per hour.
- \$30 per week has an overtime rate of 50 cents per hour.
- \$32 per week has an overtime rate of 53 cents per hour.
- \$34 per week has an overtime rate of 56.5 cents per hour.
- \$36 per week has an overtime rate of 60 cents per hour.

Anyone making a practice of keeping daily labor cost records has plenty to think about.

New Members

Montreal Chapter.

- George M. Grant, Montreal Tramways Co., Montreal.
- Wallace K. Sparling, Miner Rubber Co., Ltd., Granby, P.Q.
- Norman Gendreau, John Fenderson & Co., Sayabec Co., Metapedia, P.Q.
- Stanley D. Reavley, O'Sullivan College of Business Administration, Montreal.

Hamilton Chapter.

- H. J. Kellond, The Eaton Knitting Co., Ltd., Hamilton.

Kitchener Chapter.

- L. B. Hope, Dominion Electrohome Industries Ltd., Kitchener.
- J. L. Bowman, Blue Top Brewery Ltd., Kitchener.

Windsor Chapter.

- E. R. Hutchinson, Walker Metal Products, Ltd., Windsor.
- J. T. N. Wigle, C.A., A. S. Fitzgerald & Co., Windsor.
- R. G. Millen, Auto Specialties Mfg. Co., Ltd., Windsor.
- H. C. Cox, C.A., Hiram Walker & Sons, Ltd., Windsor.
- R. S. Baird, Dominion Twist Drill Co., Ltd., Windsor.
- J. D. Elder, Burroughs Adding Machine Co., Ltd., Windsor.
- F. A. Hubbell, Bendix-Eclipse Co., Ltd., Windsor.
- W. J. Person, Canadian Motor Lamp Co., Ltd., Windsor.
- C. Van de Linder, Northern Crane & Hoist Co., Ltd., Windsor.
- W. Orth, Electric Autolite Co., Ltd., Sarnia.
- J. A. Longmoore, Ford Motor Co. of Canada Ltd., Windsor.
- J. H. Cookson, Ford Motor Co. of Canada Ltd., Windsor.
- G. F. Luttrell, Ford Motor Co. of Canada Ltd., Windsor.
- W. Galloway, John Wyeth & Brother, Inc., Windsor.
- L. A. Renaud, Dominion Forge & Stamping Co. Ltd., Windsor.
- A. Gignac, Purity Dairies Ltd., Windsor.
- J. J. Walsh, Frederick Stearns & Co. of Can., Ltd., Windsor.
- L. Hanton, Frederick Stearns & Co. of Can., Ltd., Windsor.
- J. P. Masterson, C.G.A., Hiram Walker & Sons, Windsor. (Transferred from Montreal Chapter.)

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Winnipeg.

C. B. Farrell, Winnipeg Hydro Electric System.

Non-Resident.

W. D. Fettes, Renfrew Electric & Refrigeration Co., Renfrew, Ont.
(Attached to Toronto Chapter.)

J. Harris, Maple Leaf Milling Co. Ltd., Medicine Hat, Alta. (Attached to Edmonton Chapter.)

Whither Cost Accounting

Reprinted from "Accountancy"

Sometimes the particular task upon which we are engaged would be better served if for a short while we relaxed our attention and considered generally the scheme into which the job fits and the purpose it is designed to serve. This is as true of accounting as of any other branch of knowledge. It is the purpose of this short article to pass in review some of the developments in that branch of our science known as cost accounting.

Costing has been mainly an attempt to analyse and allocate the payments made by a business as between departments, products, jobs, and so on, according to the nature of the business. The purpose has been twofold, namely, to check the efficiency of works operation, and to assist decisions regarding pricing. Since cost accounting developed as an extension of bookkeeping or ordinary financial accounting, an attempt was made to preserve not only the double-entry form, but also a close relationship with the actual results disclosed in the financial accounts. It became the pride of cost accountants and of cost accounting writers, to build up systems which interlocked with the financial records. Such interlocking became a sign of respectability in cost control. The effect of this was that attempts were made in all sorts of ingenious ways to divide up the payments of the business. If, for example, the business consisted of undertaking engineering contracts, each of which could be distinguished from other contracts, attempts were made to divide up material costs, labour costs, and other expenses between the various jobs. The more elaborate the analysis, the more satisfied, apparently, were the cost accountants, and we had as a result such complications as the machine hour rate. The procedure involves the division of expenditure between departments, the departmental total being divided among machines and the machine total among jobs. Additional devices are used for allocating administrative and selling costs. Allocation is artificial for two reasons. In the first place, there is allocation over time, of, for example, the expenditure on machinery by the adoption of the straight line or reducing balance, or any other arbitrary method of "writing off" the asset. Secondly, there is the allocation of expenditure between products. It is one thing to say that a foreman is required if a particular department is maintained, and that his wages can therefore be traced to the department, but it is quite another thing to say that these wages can be divided among a number of machines

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the shutting down of any of which would not save a penny in foremen's wages, and even more artificial to carry a part of this particular wage cost to a particular job, using one of these machines say for a few hours only. The test is, would any part of the expenditure, and if so, what part, be saved by refusing the job, shutting down the machine, closing the department, or by making any other decision?

The restrictions which the double-entry form imposed on cost control and the rigidity which develops from an attempt by bookkeeping methods to analyze past payments is now leading to what appears to be a certain amount of revulsion again artificial analysis. It is argued that if an analysis of costs is purely arbitrary, however "fair and reasonable" it may be, it is useless in making business decisions. Business decisions involve two questions: How will future receipts be affected, and how will future costs be affected? In making these decisions it is useful, indeed imperative often, to have information showing what has happened in the past when similar decisions have been made. The result is that certain writers are turning towards the work on cost theory which economists have done, and it seems possible that future developments of cost accounting may combine to a much greater degree than hitherto a use of statistical method and economic theory.

This approach has regard to variations. The management will ask about any possible decision: "What variation will there be in our receipts,

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Young man with ten years' experience as Cost Accountant and Accountant, Production and Cost Control, desires position, preferably near Montreal. Fully capable of taking charge. Apply Box 39, "Cost and Management."

Accountant with both Industrial Accounting and Cost Accounting experience extending over fifteen years, is anxious for position. Thoroughly capable and would go anywhere for good position. Apply Box 40, "Cost and Management."

Young man with Accounting experience, at present studying Cost Accounting, is anxious for position in Montreal area. Well educated and fully capable. Apply Box 41, "Cost and Management."

Accountant, young, experienced and with excellent references, is anxious for position in Montreal or vicinity. Student of Cost Accountancy. Apply Box 42, "Cost and Management."

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and what variation will there be in our costs as a result of this decision?" The answer to the second question should be the function of the cost accountant. If the decision concerns the acceptance of an additional job involving the use of a given machine for 10 hours, it would normally be untrue to say that the additional cost of using the machine for those additional hours would be equal to the conventional machine hour rate multiplied by 10; only by the sheerest accident could this figure be the right one. In job costing, for example, a technique should be hammered out to show in any given situation the lowest price which it would pay to take for a contract, this price being the sum of the costs which could be avoided if the job were not taken on. The critic of this approach would say that this only gives a lower limit to price, and does not assist us in deciding the actual price to charge. The reply to this would be that no costing system can by itself indicate the price which should be charged if profit is to be maximised. To maximise profit avoidable costs on the one hand have to be considered, and demand conditions on the other. The problem is not a simple one, for the cost of any job includes the difference between the price and avoidable costs of any alternative job which might be undertaken in place of the first. Very close co-operation is necessary between the costing and the selling executives of a business, neither can function adequately without the assistance of the other.

An important result follows from this process of reasoning; if avoidable costs are the criteria on which pricing and other decisions are to depend an historical record of payments will not provide the necessary information. The fact that copper was bought at £35 per ton and is still

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Cost Accountants

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COST AND MANAGEMENT

in stock is no reason for charging it at this price to a contract about to be considered. The cost of using this copper to-day is at least as high as the price which could be obtained from selling it in the market. Cost is opportunity cost. Every decision involves the foregoing of certain other opportunities and the best of these is opportunity cost. Only opportunity cost need be considered in making a decision. Thus, if a machine has been purchased which is expected to be valueless by reason of obsolescence in three years' time and a contract has just been offered which will utilise this machine to such an extent that its physical life is reduced from five to three years, this fact can be ignored. The cost of wearing out the machine is not opportunity cost as it exhausts the services which could be rendered in years 4 and 5, and these services would be valueless. Circumstances in which such factors are important are by no means rare.

Hasty criticism of this approach suggests that prices based on such calculations would involve the failure to "recover" overhead costs. This criticism is quite invalid. Cost in any case is only one factor in the pricing decision, and it would be wrong to assume that avoidable cost is the same as the conventional prime cost, that is to say, direct materials, direct labour and chargeable expenses. This conventional heading in the normal job costing system may sometimes indicate avoidable cost. On the other hand, circumstances will often arise in which the latter not only exceeds the conventional prime cost, but may also exceed the conventional total cost.

Other critics of this new and disturbing approach to cost accounting problems may argue that it is estimating which is being considered, and that estimating is not cost accounting. This would be an unwise attitude to adopt, for it would mean that the most important assistance which accountants can render to business men, namely, the provision of information for current decisions, is treated as only a subsidiary branch of our technique. The expense of recording cost data is justified only in so far as it makes possible estimates for future decisions. It is imperative, therefore, that accountants should study in close detail the nature of these decisions, and the facts on which they should be based. It would apparently be better to accept the view that information for decisions must be the criterion of our professional work and to eradicate anomalies which can be defended only by a refusal to admit this. An attitude which makes traditional bookkeeping the keystone of our work will tend to render our services less useful to the business world than they need be, and to limit our activities to a minor sphere of responsibility.

